ORAL ARGUMENT NOT YET SCHEDULED

No. 21-1130 (and consolidated cases)

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

INTELLIGENT TRANSPORTATION SOCIETY OF AMERICA and AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS,

Petitioners,

v.

FEDERAL COMMUNICATIONS COMMISSION and UNITED STATES OF AMERICA,

Respondents.

On Petitions for Review and Appeal of an Order of the Federal Communications Commission

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BRIEF FOR RESPONDENTS/APPELLEE

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CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES

(A) **Parties and Amici.** The Petitioners in No. 21-1130 and Appellants in No. 21-1131 are the Intelligent Transportation Society of America and the American Association of State Highway and Transportation Officials. The Petitioner in No. 21-1140 is the Amateur Radio Emergency Data Network.

The Respondents in the petitions for review (Nos. 21-1130 and 21-1140) are the Federal Communications Commission and the United States of America. The Appellee in the appeal (No. 21-1131) is the Federal Communications Commission.

Continental Automotive Systems, Inc. has intervened in support of Petitioners/Appellants. The following parties have each intervened in support of Respondents/Appellee:

- NCTA—The Internet & Television Association
- Wi-Fi Alliance
- The 5G Automotive Association

An *amicus* brief in support of Petitioners/Appellants has been filed by the American Traffic Safety Services Association, American Highway Users Alliance, Institute of Transportation Engineers, Mothers Against Drunk Driving, and the National Safety Council. A notice of intent to file

an *amicus* brief in support of Respondents/Appellee has been filed by CTIA—The Wireless Association. Public Knowledge and New American's Open Technology Institute have requested consent to file an *amicus* brief in support of Respondents/Appellee.

(B) **Rulings Under Review.** The petitions for review and the appeal challenge the following order of the Federal Communications Commission: First Report and Order, Further Notice of Proposed Rulemaking, and Order of Proposed Modification, *Use of the 5.850–5.925 GHz Band*, 35 FCC Rcd. 13440 (2020) (*Order*), *reprinted at* JA____–___.

(C) **Related Cases.** The *Order* under review has not previously been before this Court or any other court. Respondents/Appellee are aware of no other related cases within the meaning of D.C. Circuit Rule 28(a)(1)(C).

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GLOSSARY

FCC or **Commission**	Respondent/Appellee Federal Communications Commission
Transportation Petitioners	Petitioners/Appellants Intelligent Transportation Society of America and American Association of State Highway and Transportation Officials
Amateur Data Network	Petitioner Amateur Radio Emergency Data Network
GHz	Gigahertz
5.9 GHz band	The portion of the electromagnetic spectrum ranging from 5.850 GHz to 5.925 GHz
Order	First Report and Order, Further Notice of Proposed Rulemaking, and Order of Proposed Modification, *Use of the 5.850–5.925 GHz Band*, 35 FCC Rcd. 13440 (2020) (*Order*) (JA____–___)

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BRIEF FOR RESPONDENTS/APPELLEE

INTRODUCTION

In the proceeding below, the Federal Communications Commission reasonably exercised its authority over the Nation's airwaves to repurpose a portion of the 5.9 gigahertz (GHz) spectrum band to fulfill a pressing need for improved Wi-Fi internet service and other unlicensed uses, while also preserving ample capacity for present and anticipated vehicular-communications needs. *Use of the 5.850–5.925 GHz Band*, 35 FCC Rcd. 13440 (2020) (*Order*) (JA____–___).

Since the FCC initially allocated the 5.9 GHz band for vehicular communications in 1999, the needs of the American public and the optimal use of this spectrum have changed dramatically. Vehicular-communications technology using the band has barely been deployed, and many of the features for which this spectrum was expected to be used have shifted to different technologies and to other bands, leaving this valuable spectrum substantially underutilized. Meanwhile, demand for this spectrum to support Wi-Fi networks and wireless broadband—technology that barely existed when this spectrum was allocated more than two decades ago—has exploded. The need for more spectrum to keep pace with skyrocketing demand for wireless connectivity continues to grow, especially following the dramatic rise in teleworking and remote learning in the wake of the COVID-19 pandemic.

The Commission's decision to repurpose a portion of this spectrum for Wi-Fi and other unlicensed uses, while preserving ample capacity to serve all reasonably anticipated traffic-safety needs, reflects a careful balancing of competing public demands and the sound exercise of the Commission's broad spectrum-management authority. Nothing required the Commission to accept Petitioners' unsubstantiated claims that additional spectrum must be reserved for uncertain future features or

technologies that have barely been developed, have not been significantly tested or demonstrated, and may never prove feasible or attain significant commercial deployment. Petitioners' challenges to the Commission's reasoned exercise of its broad authority to ensure that scarce public spectrum is put to its highest and best use should be denied.

JURISDICTIONAL STATEMENT

A summary of the *Order* was published in the Federal Register on May 3, 2021. *See* 86 Fed. Reg. 23281. On June 2, the Intelligent Transportation Society of America and the American Association of State Highway and Transportation Officials (the "Transportation Petitioners") timely filed both a petition for review under 47 U.S.C. § 402(a) and a notice of appeal under 47 U.S.C. § 402(b). Because the Court "ha[s] jurisdiction 'by the one procedural route or the other,'" and the same substantive standards apply under either provision, the Court need not resolve which of those two paths to judicial review was the more appropriate route for the Transportation Petitioners' challenges. *PSSI Glob. Servs., L.L.C. v. FCC*, 983 F.3d 1, 6 (D.C. Cir. 2020).

The Amateur Radio Emergency Data Network ("Amateur Data Network") timely filed a separate petition for review on June 21. As the Commission previously explained, the Amateur Data Network lacks

independent standing to challenge the *Order*. *See* Resp. FCC's Opp. to Mot. for Stay Pending Review at 7–9, *Amateur Radio Emergency Data Network v. FCC*, No. 21-1141 (filed June 29, 2021) (the Amateur Data Network is not a membership organization and lacks associational standing to sue on behalf of users of its technology); *id.* at 15–16 (the Amateur Data Network lacks statutory standing because it falls outside the "zone of interests" of the transportation statutes it seeks to invoke). But because the Amateur Data Network's challenges overlap with those of the Transportation Petitioners, who do have standing, the Court need not resolve this issue.

STATEMENT OF THE ISSUES

1. Whether the Federal Communications Commission, which previously exercised its broad authority over radio communications to allocate 75 megahertz of spectrum in the 5.9 GHz band for vehicular communications, lawfully invoked that same authority to reassign vehicular communications to the upper 30 megahertz of the band and to repurpose the lower 45 megahertz for unlicensed use.

2. Whether the Commission reasonably found that retaining 30 megahertz of spectrum for vehicular communications will support the traffic-safety features for which this spectrum is reasonably expected to be used.

3. Whether the Commission reasonably exercised its authority under Section 316 of the Communications Act, 47 U.S.C. § 316, to modify existing vehicular-communications licenses upon finding that doing so "will promote the public interest, convenience, and necessity."

PERTINENT STATUTES AND REGULATIONS

Pertinent statutes and regulations are set forth in the statutory addendum bound with this brief.

STATEMENT OF THE CASE

A. Statutory And Regulatory Background

Congress established the Federal Communications Commission "to serve as the single Government agency with unified jurisdiction and regulatory power over all forms of electrical communications, whether by telephone, telegraph, cable, or radio." *United States v. Sw. Cable Co.*, 392 U.S. 157, 168–69 (1968) (internal quotation marks and citations omitted). To that end, Title III of the Communications Act of 1934 "endow[s] the Commission with 'expansive powers' and a 'comprehensive mandate to "encourage the larger and more effective use of radio in the public interest."'" *Cellco P'ship v. FCC*, 700 F.3d 534, 542 (D.C. Cir. 2012); *see id.* at 542–43.

Among other things, Section 303 of the Communications Act empowers the Commission to "assign bands of frequencies to the various classes of stations," to "prescribe the nature of the service to be rendered by each class of licensed stations," to "make such rules and regulations and prescribe such restrictions and conditions" as it deems necessary, and to "generally encourage the larger and more effective use of radio in the public interest." 47 U.S.C. § 303(b)–(c), (g), (r). In addition, Section 316 of the Act empowers the Commission to modify any spectrum license "if, in the judgment of the Commission, such action will promote the public interest, convenience, and necessity." *Id.* § 316(a)(1); *see Order* ¶¶ 52, 116–117 (JA____, ____–__).

More recently, in Section 5206(f) of the Transportation Equity Act for the 21st Century, Congress directed the Commission to "consider * * * spectrum needs" for motor vehicles and to "complete[] a rulemaking considering the allocation of spectrum." Pub. L. No. 105-178, Sec. 5206(f), 112 Stat. 107, 457 (1998); *see Order* ¶¶ 6, 123 (JA____, ____–__). As discussed below, the Commission completed that initial proceeding in 1999 and chose to allocate 75 megahertz of spectrum for vehicular communications at that time.

The Commission may also authorize "unlicensed operation" if it determines that unlicensed use will not cause harmful interference to licensed users. *Am. Radio Relay League, Inc. v. FCC*, 524 F.3d 227, 234 (D.C. Cir. 2008). Congress recently directed the Commission to "develop a national plan for making additional radio frequency bands available for unlicensed or licensed by rule operations." 47 U.S.C. § 1508(b).

B. Vehicular Communications And The 5.9 GHz Band

In 1999, the Commission allocated the 75 megahertz of spectrum between 5.850 and 5.925 GHz, known as the "5.9 GHz band," for vehicular communications. *See Order* ¶ 6 & n.7 (JA____–__). Vehicular licensees share the 5.9 GHz band with several other services, including government radar systems, amateur radio, and satellite uplink. *See id.* ¶ 12 (JA____). A subsequent order established licensing and service rules for vehicular licensees. *Amendment of the Commission's Rules Regarding Dedicated Short-Range Communication Services in the 5.850–5.925 GHz Band*, 19 FCC Rcd. 2458 (2004) (*DSRC Service Rules*).

Two decades later, the anticipated vehicular use of the 5.9 GHz band "has not come to fruition," and this spectrum "has not lived up to the original promise [and] goals identified when the spectrum was allocated" for vehicular communications. *Order* ¶¶ 27, 31 (JA____, ____–

__). Vehicular-communications technology "has evolved slowly" and "has barely been deployed[] in the more than 20 years since [its] adoption." *Id.* ¶¶ 3, 7 (JA____–__). "[D]eployments for the most part have been limited to government-funded demonstration projects," and "even after 20 years there are currently no commercially-marketed vehicles that include[] [5.9 GHz] radios to even provide * * * basic safety services." *Id.* ¶¶ 31, 45 (JA____–__, ____).

Meanwhile, "[s]ince the Commission first designated the 5.9 GHz band for [vehicular use] in 1999, transportation and vehicular safety-related technologies have evolved significantly[.]" *Order* ¶ 14 (JA___). The 5.9 GHz band has "fail[ed] * * * to become used ubiquitously for the broad range of [traffic safety] applications that were originally anticipated," *id.* ¶ 28 (JA____), and the record reflects that "many automotive safety functions originally contemplated for * * * the 5.9 GHz band 20 years ago—such as alerting drivers to vehicles or other objects, lane-merging alerts, and emergency braking—are already being met by other technologies like radar, LiDAR, cameras, and sensors," *id.* ¶ 33 (JA____).[1]

[1] LiDAR, short for "light detection and ranging," is "an optical sensing technology used to determine the position, velocity, or other characteristics of distant objects by analysis of pulsed laser light

Indeed, extensive record evidence demonstrates that "many potential [5.9 GHz]-based advanced vehicle safety systems—including road departure, lane merge, work zone warning, vehicle stopped or slowing, [and] vehicle-to-vehicle collision avoidance—appear to be available today using non-[5.9 GHz] technologies." *Order* ¶ 32 n.81 (JA____); *see id.* ¶¶ 32–33, 38 (JA____–__). "Optical cameras, sonar, and LiDAR" can now be integrated into vehicles to "materially and significantly advance[] overall automotive safety," performing—and even "surpassing"—"many functions that were originally envisioned to be performed by" 5.9 GHz technology. *Id.* ¶ 32 (JA____). The Commission has "also made more spectrum available for vehicular radars" in the 76–81 GHz band, which "is actively used today" for "obstacle avoidance, collision warning, lane departure warning, lane change aids, blind spot detection, parking aids, airbag arming, autonomous braking, and pedestrian detection." *Id.* ¶¶ 32, 38 & n.103 (JA____, ____).

In addition, many vehicular-communications systems today "can offload less time-critical * * * communications to the cellular network." *Order* ¶ 103 (JA___). "[A]pplications like road weather information,"

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reflected from their surfaces." *American Heritage Dictionary of the English Language* 1013 (5th ed. 2011).

which do not require near-instantaneous communication, "are more appropriately provided" through the cellular network or other technology, and do not require spectrum "dedicated for safety-of-life applications." *Id.* ¶ 141 (JA____). Similarly, many features once contemplated for the 5.9 GHz band are now supplied by ordinary cellphone applications that can connect to and integrate with many vehicles' on-board systems; for example, the popular Waze application for maps and driving directions provides real-time "accident and construction zone warnings." *Id.* ¶ 32 (JA____–__). Through this technology, "[c]ommercial cellular services and frequently updated databases can provide important roadway-related information" without needing dedicated 5.9 GHz spectrum. *Id.* ¶ 38 (JA____–__).

C. The *Order* Under Review

1. In late 2019, the Commission issued a Notice of Proposed Rulemaking taking a "fresh look" at the 5.9 GHz band to ensure that this spectrum is put to its highest and best use. *Use of the 5.850–5.925 GHz Band*, 34 FCC Rcd. 12603 (2019) (JA___–__). The Commission proposed to preserve the upper 30 megahertz of the band for vehicular communications while repurposing the lower 45 megahertz for

unlicensed use, including for improved Wi-Fi networks and wireless broadband, and sought comment on this proposal. *Ibid.*

The Commission received extensive public comment on its proposal to update the 5.9 GHz band. Many commenters agreed that the lower portion of the band should be repurposed for Wi-Fi internet and other unlicensed uses. *See Order* ¶¶ 19, 21–23, 33, 45, 126–127, 132 (JA____–__, ____–__, ____–__, ____–__, ____). Others argued that the entire band should be preserved for vehicular use. *See id.* ¶¶ 19, 42–44, 128–131, 140–143 (JA____–__, ____–__, ____–__, ____–__). The U.S. Department of Transportation voiced significant concern over whether the Commission's proposal would provide adequate spectrum for traffic-safety technology, and it urged the Commission to revisit the proposal and not to reduce the spectrum allocated for vehicular communications. *Order* ¶¶ 19 & n.48, 44 & nn.122–124, 118 & n.309, 143 (JA____–__, ____–__, ____, ____); *see* DOT Comments (JA____–__).

2. In the *Order*, the Commission determined that scarce 5.9 GHz spectrum need not be reserved for features that can now "be achieved through other technologies." *Order* ¶¶ 32–33, 38 (JA____–__, ____–__). "[S]ervices in the 5.9 GHz band should not duplicate [functionality] that is already readily available, nor should excess 5.9 GHz band spectrum

continue to be reserved for applications that can or have already been provided using other spectrum bands or alternative technology. Instead, dedicated [5.9 GHz] spectrum must be reserved for safety-related [communications] services that cannot be readily achieved through other means." *Id.* ¶ 38 (JA____).

Based on the extensive record before it, the Commission concluded that the vehicular-safety features that have been developed or are reasonably anticipated for the 5.9 GHz band require only 30 megahertz of spectrum or less. *See Order* ¶¶ 32–33, 35–39 (JA____–__, ____–__). The Commission found that 30 megahertz is more than enough to "support crash warning applications"—such as "intersection movement assist, left-turn assist, forward collision warning, and lane change warning"—by "provid[ing] speed, direction, turning angle, path history, and acceleration/deceleration * * * to nearby connected vehicles." *Id.* ¶ 35 & n.96 (JA____). It can also allow for "warning messages between connected vehicles and connected Vulnerable Road Users * * * such as pedestrians, bicyclists, and road workers." *Id.* ¶ 35 & n.97 (JA____). And it can permit "messages providing information * * * from smart road infrastructure," including information about traffic signals, speed limits, and construction zones. *Id.* ¶ 35 & n.98 (JA____–__). Other submissions

in the record indicate that "real-time [vehicular] safety communication requires no more than 30 megahertz of spectrum." *Id.* ¶ 33 (JA____). The Commission accordingly concluded that "30 megahertz is sufficient for the provision of core vehicle safety-related * * * functions." *Id.* ¶ 35 (JA____).

The Commission "disagree[d]" with arguments "that more than 30 megahertz should be reserved to accommodate future * * * services" that do not currently exist and might never prove feasible or be commercially deployed. *Order* ¶ 43 (JA____); *see id.* ¶¶ 39, 43–46 (JA____, ____–__). Many commenters referred to such hypothetical future technologies as "advanced" services. Upon review of the record, the Commission found claims about "the status of future plans for these advanced services" to be "unconvinc[ing]," and it "conclude[d] that the potential deployment of future * * * services that may or may not develop years into the future are too uncertain and remote to warrant the further reservation of spectrum for their deployment." *Id.* ¶ 120 (JA____). Although the 5.9 GHz band has been available for vehicular communications "for many years," these proposed future services remain "still under development and have not been deployed." *Id.* ¶ 39 (JA____). Indeed, the Commission found it uncertain whether widescale commercial deployment of such

proposed technologies would ever "occur[] at all." *Ibid.*; *see also id.* ¶ 42 (JA____) ("[T]he credibility of such arguments is lacking given that these same arguments have been advanced by [vehicular spectrum] proponents for years and years with no discernible change"). The Commission thus concluded that "reserving the entire 5.9 GHz band for possible additional services by [vehicular] licensees is not the most efficient or effective use of that band, nor is it in the best public interest to do so." *Id.* ¶ 27 (JA____).

3. Taking these considerations into account, the Commission chose to repurpose the lower 45 megahertz of the 5.9 GHz band for unlicensed uses such as Wi-Fi internet. *Order* ¶¶ 14–25 (JA____–__). The Commission emphasized that this newly available spectrum will "deliver immediate and significant benefits" because it can be combined with adjacent unlicensed spectrum to enable higher-capacity broadband networks, thereby allowing Wi-Fi networks to relieve congestion, deliver higher speeds, and otherwise keep pace with skyrocketing demand for wireless connectivity. *Id.* ¶ 18 (JA____); *see id.* ¶¶ 18–22 (JA____–__). Because the repurposed spectrum is directly adjacent to spectrum currently used for Wi-Fi, it will be possible for many existing devices to easily enable use of the new spectrum through software or firmware

updates. *Id.* ¶ 22 (JA____–__). Many consumers will thus receive the benefits of this new spectrum without having to replace their existing devices, *ibid.*, which will provide immediate relief for networks struggling to keep pace with skyrocketing demand for wireless connectivity. The Commission explained that the need for this additional Wi-Fi spectrum has become "more critical than ever before" due to increased reliance on remote connectivity in the wake of the COVID-19 pandemic. *Id.* ¶ 16 (JA____).

The Commission adopted technical and operating rules to ensure that unlicensed operations in the lower 45 megahertz of the band will not cause harmful interference to vehicular communications in the upper 30 megahertz. *See Order* ¶¶ 80–86 (JA____–__). The *Order* imposes stringent power and out-of-band emissions limits on unlicensed devices, *id.* ¶¶ 80–83 (JA____–__), and also confines unlicensed use to indoor locations only, *see id.* ¶¶ 65–66, 81, 86 (JA____–__, ____, ____). The Commission found that, under these limits, vehicular communications in the upper 30 megahertz will not experience any greater interference than was already allowed from use of other nearby spectrum. *Id.* ¶ 83 (JA____–__).

The Commission determined that the *Order* will have enormous benefits for the American public by swiftly putting this important and underutilized spectrum to its highest and best use. *See Order* ¶¶ 14, 20, 27 (JA____, ____, ____). The *Order* undertakes a detailed cost–benefit analysis and conservatively estimates at least $17.2 billion in benefits to the American public over the years 2023 to 2025 alone. *Id.* ¶¶ 125–143 & App'x C (JA____–__, ____–__).

4. The Commission also concluded that it should update the associated service rules for vehicular communications to transition from the original communications protocol adopted two decades ago (Dedicated Short-Range Communications, or DSRC) to a newer cellular protocol (Cellular Vehicle-to-Everything, or C-V2X) derived from 4G and 5G wireless technology. *See Order* ¶¶ 96–106 (JA____–__). In a Further Notice of Proposed Rulemaking, the Commission has sought comment on timing and procedures to govern that transition to the new cellular protocol. *Id.* ¶¶ 110, 146–168 (JA____–__, ____–__).

STANDARD OF REVIEW

A court may not overturn agency action unless it is arbitrary, capricious, or otherwise contrary to law. *See* 5 U.S.C. § 706(2). "The scope of review under the arbitrary and capricious standard is narrow,"

and a court "is not to ask whether [the challenged] regulatory decision is the best one possible or even whether it is better than the alternatives." *FERC v. Elec. Power Supply Ass'n*, 577 U.S. 260, 292 (2016) (internal quotation marks omitted). Instead, under this "deferential" standard, "[a] court simply ensures that the agency has acted within a zone of reasonableness and, in particular, has reasonably considered the relevant issues and reasonably explained the decision." *FCC v. Prometheus Radio Project*, 141 S. Ct. 1150, 1158 (2021). The court "presumes the validity of agency action and must affirm unless the Commission failed to consider relevant factors or made a clear error in judgment." *Cellco P'ship v. FCC*, 357 F.3d 88, 93 (D.C. Cir. 2004) (citations omitted). And courts must "'accept the Commission's findings of fact as long as they are supported by substantial evidence on the record as a whole.'" *PSSI Glob. Servs., L.L.C. v. FCC*, 983 F.3d 1, 7 (D.C. Cir. 2020).

The Commission's interpretation of statutes it administers is reviewed under the principles set forth in *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837 (1984). Under *Chevron*, "if the statute is silent or ambiguous with respect to [a] specific issue, the question for the court is whether the agency's answer is based on a

permissible construction of the statute." *Id.* at 843. If so, the Court must "accept the agency's construction of the statute, even if the agency's reading differs from what the court believes is the best statutory interpretation." *Nat'l Cable & Telecomms. Ass'n v. Brand X*, 545 U.S. 967, 980 (2005). The Court interprets other statutes *de novo*.

SUMMARY OF THE ARGUMENT

The Commission reasonably repurposed 45 megahertz of the 5.9 GHz band for Wi-Fi internet and other unlicensed uses, demand for which has skyrocketed in recent years. In doing so, the Commission carefully considered and amply addressed the needs of traffic safety. Based on a thorough review of the extensive record in this proceeding, the Commission reasonably found that the needs of traffic safety will be served by retaining 30 megahertz of dedicated 5.9 GHz spectrum for vehicular communications. As the Commission explained, many of the traffic-safety features for which the 5.9 GHz band was originally expected to be used have since shifted to other technologies that do not require this spectrum, and the remaining vehicular-safety features reasonably anticipated for the 5.9 GHz band need only 30 megahertz of spectrum or less.

Under the circumstances, the Commission appropriately declined to hold additional spectrum in reserve for proposed future technologies that have barely been developed, have not been significantly tested or demonstrated, and may never prove feasible or attain significant commercial deployment. Based on its review of the record, the Commission reasonably concluded that claims about proposed technologies that may or may not develop years into the future are too uncertain and remote to warrant leaving much of this critical spectrum band fallow or underutilized, especially at the expense of other pressing public needs. As the Commission recognized, reserving the entire band for vehicular communications would not be a sound use of scarce spectrum resources and would not be in the public interest.

I. The Commission possesses ample legal authority to update the spectrum allocation and service rules for vehicular communications. Congress established the Commission to oversee all forms of radio communication and has endowed it with expansive spectrum-management authority. Among other things, the Communications Act empowers the Commission to "assign bands of frequencies to the various classes of stations," to "prescribe the nature of the service to be rendered by each class of licensed stations," to "make such rules and regulations

and prescribe such restrictions and conditions" as it deems necessary, and to "generally encourage the larger and more effective use of radio in the public interest." 47 U.S.C. § 303(b)–(c), (g), (r).

Far from constraining the Commission's spectrum-management authority, the Transportation Equity Act reflects and reinforces that authority by relying on the Commission to address any need for vehicular spectrum. Nothing in Congress's instruction to the Secretary of Transportation to support vehicular safety technologies purports to restrict the Commission's well-settled power to allocate (and reallocate) spectrum. When considering spectrum for vehicular communications, the Commission appropriately takes account of traffic-safety needs, and it did so here. But nothing in the statutes invoked by Petitioners vests exclusive authority over vehicular communications in the Secretary or displaces the Commission's authority to manage the Nation's airwaves.

II. The Commission's decision to repurpose a portion of the 5.9 GHz band was reasonable and reasonably explained. The Commission laid out why changes in vehicular-safety technology and American society over the past two decades have changed the optimal use of the 5.9 GHz band. It further explained why 30 megahertz is enough to accommodate the traffic-safety features that this band is reasonably

expected to be used for, and why repurposing the lower 45 megahertz for Wi-Fi and other unlicensed uses will serve the public interest. The Commission also took significant steps to ensure that unlicensed operations in the lower 45 megahertz of the band will not cause harmful interference to vehicular communications in the upper 30 megahertz, including the adoption of stringent power and out-of-band emissions limits for unlicensed devices. And petitioners' calls for a negotiated rulemaking or buildout requirements are not viable solutions to the underlying problems that the *Order* seeks to address.

III. Finally, the Commission properly exercised its authority under Section 316 of the Communications Act to modify existing vehicular-communications licenses. It reasonably found that modifying these licenses will serve the public interest by making additional spectrum available to fulfill a pressing public need for improved Wi-Fi internet service and other unlicensed uses, while also preserving ample spectrum for all reasonably anticipated traffic-safety needs.

Contrary to Petitioners' contentions, these modifications do not fundamentally change or revoke any existing licenses. Because vehicular licensees will be able to provide substantially the same services after the transition as before, the *Order* does not effect a fundamental change to

their licenses, but instead falls well within the Commission's authority to modify licenses under Section 316. And as this Court has explained, a reduction in spectrum that leaves licensees with enough capacity to continue providing essentially the same service does not constitute an impermissible revocation.

ARGUMENT

I. THE COMMISSION HAS BROAD AUTHORITY TO ALLOCATE SPECTRUM AND ESTABLISH SERVICE RULES FOR VEHICULAR COMMUNICATIONS.

A. The Commission Possesses Broad Authority Over Spectrum Allocation, Licensing, And Service Rules, Including For Vehicular Communications.

1. The Commission is endowed with "'expansive'" spectrum-management authority and "a 'comprehensive mandate to "encourage the larger and more effective use of radio in the public interest."'" *Cellco P'ship v. FCC*, 700 F.3d 534, 542 (D.C. Cir. 2012) (quoting *Nat'l Broad. Co. v. United States*, 319 U.S. 190, 219 (1943), quoting in turn 47 U.S.C. § 303(g)). To ensure that scarce public spectrum is put to its highest and best use, Congress has empowered the Commission to "assign bands of frequencies to the various classes of stations," to "prescribe the nature of the service to be rendered by each class of licensed stations," and to "make such rules and regulations and prescribe such restrictions and

conditions" as it deems necessary. 47 U.S.C. § 303(b)–(c), (r); *see Cellco P'ship*, 700 F.3d at 542–43. The Supreme Court has explained that the Communications Act gives the Commission "'unified jurisdiction' and 'regulatory power over all forms of electrical communication.'" *United States v. Sw. Cable Co.*, 392 U.S. 157, 168–69 (1968) (citations omitted).

The Commission's broad responsibility for managing public spectrum is "correctly conceive[d] of * * * in prophetic and managerial terms: it must predict the effect and growth rate of technological newcomers on the spectrum, while striking a balance between protecting valuable existing uses and making room for these sweeping new technologies." *Teledesic LLC v. FCC*, 275 F.3d 75, 84 (D.C. Cir. 2001). So when "the Commission is 'fostering innovative methods of exploiting the spectrum,'" it "'functions as a policymaker' and is 'accorded the greatest deference by a reviewing court.'" *Mobile Relay Assocs. v. FCC*, 457 F.3d 1, 8 (D.C. Cir. 2006) (quoting *Teledesic*, 275 F.3d at 84); *see FCC v. WNCN Listeners Guild*, 450 U.S. 582, 596 (1981) ("The Commission's * * * rational weighing of competing policies[] is not to be set aside by the Court of Appeals, for the weighing of policies under the public interest standard is a task that Congress has delegated to the Commission in the first instance.") (internal quotation marks omitted).

2. The Transportation Equity Act reflects and reinforces the Commission's preeminent responsibility for managing and overseeing the vehicular spectrum at issue here. Section 5206(f) of the Transportation Equity Act, 112 Stat. at 457, "direct[s] the Commission to consider, in consultation with the Secretary of [Transportation], spectrum needs for" motor vehicles and "to complete a rulemaking on [vehicular] spectrum." *Order* ¶ 123 (JA____–__). If the Commission finds that action is warranted, it can take appropriate action using its established spectrum-management authority under the Communications Act.

When considering spectrum for vehicular communications, the Commission appropriately consults with the Secretary of Transportation. But a duty to "consult[] with" the Secretary leaves the ultimate responsibility in the hands of the Commission, and does not require the Commission to yield its spectrum-management authority to the Secretary or give the Secretary veto power over its spectrum-management decisions. *Cf. United Keetoowah Band of Cherokee Indians in Okla. v. FCC*, 933 F.3d 728, 750–51 (D.C. Cir. 2019); *see Narragansett Indian Tribe v. Warwick Sewer Auth.*, 334 F.3d 161, 168 (1st Cir. 2003) ("[C]onsultation is not the same thing as control over a project."); *Hoopa Valley Tribe v. Christie*, 812 F.2d 1097, 1103 (9th Cir. 1986)

("Consultation is not the same as obeying those who are consulted."). And though the Department of Transportation disagreed with aspects of the Commission's proposal during the rulemaking process, it never disputed the Commission's traditional statutory authority to manage the allocation of public spectrum.

Accordingly, it is the Commission (not the Secretary) that has always allocated spectrum, adopted service rules, and issued licenses for vehicular communications. *See Order* ¶ 6 (JA____–__). As the Department of Transportation itself acknowledged in an earlier proceeding, "[t]he FCC, not [the Department of Transportation], has the authority to determine the commercial use of spectrum" (even though it has disagreed with how the Commission chose to exercise that authority in this proceeding). Dep't of Transp., Nat'l Highway Traffic Safety Admin., *Federal Motor Vehicle Safety Standards: V2V Communications*, 82 Fed. Reg. 3854, 3984 (Jan. 12, 2017) (*DOT 2017 NPRM*); *see also id.* at 3885 ("The FCC has statutory authority for allocating spectrum rights and designated band plans for commercial spectrum allocations, including the 5.9 GHz band. The [Department of Transportation] defers to the FCC's authority with respect to spectrum rights and channel plans.").

3. Just as the Commission initially allocated 75 megahertz of spectrum for vehicular communications and adopted the original protocol, it likewise had authority here to reassign vehicular communications to the upper 30 megahertz and adopt a newer cellular protocol. If Congress wanted to entitle vehicular communications to a particular amount of spectrum or particular service rules, "it need only have [done so] in the statute itself"—but Congress instead entrusted that decision to the Commission. *See Fox Television Stations, Inc. v. FCC*, 293 F.3d 537 (D.C. Cir. 2002) (*Fox II*). And when Congress directs an agency to act through rulemaking, the agency retains its power to revisit and modify the results of that rulemaking in subsequent proceedings, just as the Administrative Procedure Act ordinarily allows. *See Fox Television Stations, Inc. v. FCC*, 280 F.3d 1027, 1042–43 (D.C. Cir. 2002), *as modified on reh'g*, *Fox II*, 293 F.3d 537. After all, an agency "'must consider * * * the wisdom of its policy on a continuing basis,' for example, in response to changed factual circumstances." *Nat'l Cable & Telecomms. Ass'n v. Brand X*, 545 U.S. 967, 982 (2005) (citation omitted).

Petitioners contend (Br. 37) that it would be unlawful if the Commission were to "reverse[] the initial 5.9 GHz allocation the day after adopting it." But the Commission claimed no such power here; it instead

carefully explained that it was revisiting its 20-year-old decision based on materially changed circumstances in the intervening two decades. *See infra* Part II.B.1. Concerns that this authority might be exercised unreasonably are properly addressed through arbitrary-and-capricious review; they do not call into question the Commission's underlying authority to administer the spectrum in accordance with the public interest.

B. Congress Has Not Divested The Commission Of Authority Over Spectrum Allocation And Service Rules For Vehicular Communications.

1. Petitioners fail to show that Congress has in any way divested the Commission of its established authority over spectrum allocation and service rules, including for vehicular spectrum. "Because we live in 'an age of overlapping and concurring regulatory jurisdiction,'" this Court has admonished, "a court must proceed with the utmost caution before concluding that one agency may not regulate merely because another may." *FTC v. Ken Roberts Co.*, 276 F.3d 583, 593 (D.C. Cir. 2001).

Here, Petitioners "can point to nothing in the background or history of" the Transportation Equity Act "that demonstrates (or even hints at) a congressional intent to preempt" the Commission's spectrum-management authority. *Ken Roberts*, 275 F.3d at 593. The

Transportation Equity Act simply directs the Commission to "consult[] with the Secretary [of Transportation]" about spectrum needs for vehicular communications, and the Commission faithfully did so. Indeed, the Commission sought and received robust feedback from the Department of Transportation at every stage of this proceeding—including both before and after releasing draft versions of its Notice of Proposed Rulemaking and of the subsequent *Order*—and the Commission gave that feedback due consideration (even if the feedback ultimately did not persuade the Commission to abandon its proposal). And the Commission retained ample spectrum within which the Department of Transportation will be "ab[le] to continue to administer" vehicular-communication initiatives. *Order* ¶ 123 (JA____–__).

There is thus no conflict between the Communications Act and the Transportation Equity Act. The Transportation Equity Act directs the Commission to hold proceedings to "consider * * * spectrum needs" for vehicular communications, and the Communications Act authorizes the Commission to allocate spectrum, issue licenses, and adopt service rules to serve the public interest (including the public interest in protecting traffic safety). The Commission faithfully carried out its responsibilities under both statutes: It repurposed a portion of the 5.9 GHz band to

advance the public interest while retaining ample vehicular spectrum to serve the needs of traffic safety. *See infra* Part II. Far from exhibiting any conflict, this process gave full effect to both statutory regimes.

2. The Amateur Data Network—but not the Transportation Petitioners, *see* Pet. Br. n.2—contends (Br. 58–60) that the Commission's actions are inconsistent with the Secretary of Transportation's role in promoting and maintaining vehicular-communications standards under 23 U.S.C. § 517(a) and related provisions. These provisions authorize the Secretary "to promote * * * the widespread deployment and evaluation of" advanced vehicular technology, 23 U.S.C. § 517(a)(1), by developing and maintaining a set of vehicular-communications protocols; by awarding grants of federal funds to support research, development, and testing of this technology; and by facilitating cooperation among private industry members, state and local governments, federal officials, and research institutions.

Nothing in Section 517(a) or related provisions purports, however, to divest the Commission of any authority or to make the Secretary responsible for specifying how spectrum is to be used. Instead, Section 517(a) appears focused largely on ensuring that surface transportation systems and projects supported by the federal Highway Trust Fund use

consistent and interoperable technologies, which are generally (though not necessarily) to be based on consensus standards developed by standards-development organizations.[2] Subsection (a)(1) begins by cross-referencing Section 12(d) of the National Technology Transfer and Advancement Act of 1995, which directs government agencies to "use technical standards that are developed and adopted by voluntary consensus standards bodies," unless those standards are "inconsistent with law or otherwise impractical." Pub. L. No. 104-113, Sec. 12(d), 110 Stat. 775, 783; *see* 23 U.S.C. § 517(a)(1). Subsections (a)(2) and (a)(3) then direct the Secretary to "promote interoperability among * * * systems and technologies implemented throughout the United States," 23 U.S.C. § 517(a)(2), and to "support * * * standards and protocols" developed by "such standards development organizations as the Secretary determines to be necessary and whose memberships include representatives of the [vehicular-communications] industries," *id.* § 517(a)(3).

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[2] Notably, this provision appears in Title 23, which provides for a federal highway system, rather than Title 49 and the National Traffic and Motor Vehicle Safety Act, 49 U.S.C. §§ 30101 *et seq.*, which address the Secretary's power to prescribe federal safety standards for motor vehicles and motor-vehicle equipment. *Cf. DOT 2017 NPRM*, 82 Fed. Reg. at 3965–66 (Title 23 gives the Secretary "research, development, and collaboration authority" over advanced vehicular technology).

Surrounding provisions reinforce the conclusion that Section 517(a) does not supersede the Commission's traditional responsibility for managing spectrum, nor its ability to prescribe appropriate service rules for spectrum that the Commission has allocated for vehicular communications. Section 517(c) authorizes the Secretary to set a "provisional standard" in particular circumstances, but provides that any provisional standard expires once "the appropriate standards development organization adopts and publishes a standard," as determined by the Secretary. 23 U.S.C. § 517(c). Section 517(d) provides that projects seeking funding from the federal Highway Trust Fund should "conform to the * * * architecture, applicable standards, and protocols" identified under subsection (a). *Id.* § 517(d). If Section 517(a) made the Secretary responsible (and displaced the Commission's responsibility) for establishing all service rules for vehicular spectrum, these provisions would be superfluous, as all users of this spectrum would be required to comply with these standards at all times.

Notably, the language that the Amateur Data Network relies on in Section 517(a) originated in Section 5206(a) of the Transportation Equity Act, 112 Stat. at 456—another subsection of the very same section that directed the Commission to consider allocating spectrum for vehicular

communications in Section 5206(f). It would make little sense to read that language to give exclusive authority over vehicular communications to the Secretary, as the Amateur Data Network claims, when the same section of the same act recognizes the Commission's authority over vehicular-communications spectrum.

3. Finally, Petitioners' contention that the Commission may not modify this spectrum without the Secretary's agreement renders the Transportation Petitioners' position internally inconsistent. If Petitioners were correct, this would call into question not only the decision to repurpose the lower 45 megahertz of spectrum, but also the *Order*'s decision to transition vehicular communications from the older protocol adopted two decades ago to a newer cellular protocol—even though the Transportation Petitioners urge the Court *not* to disturb that latter decision.[3]

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[3] *See* Pet. for Review at 4, *Intelligent Transp. Soc'y of Am. v. FCC*, No. 21-1130 (filed June 2, 2021) ("Petitioners seek review of the Commission's decision to reallocate the lower 45 MHz of the band and to modify incumbent licenses so as to prohibit the use of that spectrum. Petitioners ask this Court to vacate those portions of the Order while leaving intact the Commission's decision to enable entities to obtain licenses to operate C-V2X technologies in the upper 30 MHz of the band, which constitutes a reasonable exercise of the FCC's authority.").

Nothing in the *Order* indicates that the spectrum-allocation decision is severable from the associated licensing and service rules. And it would usurp the Commission's authority over spectrum-management issues for a court effectively to impose a hybrid band plan with a combination of spectrum and service rules that the Commission never approved. The Transportation Petitioners cannot have it both ways.

II. THE COMMISSION'S *ORDER* WAS REASONABLE AND REASONABLY EXPLAINED.

A. The Commission Considered And Met The Needs Of Transportation Safety.

Petitioners repeatedly claim (Pet. Br. 31, 34–35, 39–44) that the Commission failed to acknowledge or adequately address the needs of traffic safety. These claims are unfounded. On the contrary, the Commission reasonably found, based on the extensive record before it, that the demonstrated need for vehicular spectrum to support traffic safety will be adequately served by retaining 30 megahertz of dedicated spectrum for vehicular communications.

1. As the *Order* explains, "the extensive record in this proceeding supports [the] conclusion that relocating [vehicular-communications] licensees to the upper 30 megahertz of the band will not meaningfully

interfere with the ability of incumbents to provide the same types of safety-related services that they are currently offering." *Order* ¶ 118 (JA____).

The record shows that the 30 megahertz of dedicated spectrum the Commission retained for vehicular-communications "can accommodate various core safety-related features, including vehicle-to-vehicle and vehicle-to-infrastructure functions such as Basic Safety Message and Personal Safety Message functions," while still leaving "more spectrum potentially available for platooning and other [non-safety] services." *Order* ¶ 35 (JA____–__); *see id.* ¶¶ 33, 35–39 (JA____–__). Even some manufacturers and proponents of vehicular-communications technology acknowledged that "'crash avoidance can be supported, and possibly other applications[,]' in 30 megahertz." *Id.* ¶ 33 & n.90 (JA____) (quoting Cisco Comments at 9–10 (JA____–__)); *see also* Cisco Comments at 14 (JA____) ("Cisco would support such a change to the extent that the Commission[] * * * concludes that 30 MHz will support * * * safety-of-life goals"). While commenters pointed to various studies addressing the safety benefits of vehicular communications, these studies "do not show that more spectrum would give rise to additional benefits." *Order* ¶ 141

(JA____).[4]

It is true that, in 1999, the Commission initially allocated 75 megahertz of spectrum for vehicular communications. "Notably," however, "the [original] band plan designated only 20 megahertz for two safety channels": one 10-megahertz channel "for vehicle-to-vehicle safety communications for accident avoidance and mitigation," and another 10-megahertz channel "for public safety applications involving safety of life and property, including road intersection collision mitigation."[5] *Order* ¶ 35 (JA____); *see Amendment of the Commission's Rules Regarding Dedicated Short-Range Communication Services in the 5.850–5.925 GHz Band*, 21 FCC Rcd. 8961, 8970–73 ¶¶ 11–17 (2006) (*DSRC Recon. Order*). And although the Department of Transportation urged the Commission

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[4] The studies cited in the record largely concern benefits that can be fully achieved using 30 megahertz of spectrum or less. *See Order* ¶¶ 139 & n.381, 140 & n.385, 141 & n.387 (JA____–__).

[5] The other channels in the original band plan were made available for a variety of non-public-safety uses, such as electronic toll collection and commercial vehicle licensing, rather than being needed for traffic safety. *Cf. DSRC Service Rules*, 19 FCC Rcd. at 2467–68 ¶ 16 (explaining that the 75 megahertz initially allocated would encompass both public-safety and non-public-safety features); Comm'r Michael O'Rielly, *Defining Auto Safety of Life in 5.9 GHz*, FCC Blog (June 8, 2016, 12:46 pm), https://go.usa.gov/xM8bw; *see also* Brattle Group 4/27/20 White Paper at 6–7 (JA____–__) (filed as Attach. A to NCTA 8/31/20 Ex Parte (JA____–__)).

in this proceeding to preserve the entire band for vehicular communications, the *Order* observes that a 2017 proposal by the Department to mandate vehicular-communications systems would have required all safety communications to occur on a *single* 10-megahertz channel, indicating that "safety applications that could eliminate a large proportion of crashes may require much less spectrum." *Order* ¶¶ 139 & n.381, 140 (JA____–__); *see DOT 2017 NPRM*, 82 Fed. Reg. at 3885 ("[T]he [Department] believes that all [safety] transmissions should occur on channel 172. * * * [R]esearch suggests that a 10 MHz band is sufficient for transmitting the basic safety message to the necessary 300m range at a sufficient level of reliability"). The 30 megahertz of spectrum retained under the *Order* thus *exceeds* the amount of spectrum deemed necessary to support traffic safety under the previous band plan.

And many traffic-safety features that the 5.9 GHz band was originally expected to be used for have since shifted to other technology that does not require this spectrum. *See Order* ¶¶ 32–33, 38 (JA____–__, ____–__). Contrary to Petitioners' assertions, the *Order* did not claim that non-5.9 GHz technologies "are sufficient substitutes" (Br. 42) for use of the 5.9 GHz band. The Commission instead reasonably explained that, because many (although not all) of the traffic-safety features originally

anticipated for the 5.9 GHz band have shifted to other technologies, the amount of spectrum now needed for vehicular communications is far less than the 75 megahertz originally allocated. *See*, *e.g.*, *Order* ¶¶ 32–33, 38 (JA____–__, ____–__). "There is no evidence presented on the record that any unique safety-of-life benefits * * * could not be maintained on 30 megahertz of spectrum." Brattle Group 4/27/20 White Paper at 2 (JA____); *see id.* at 5–12 (JA____–__).

2. Continental contends that additional spectrum is needed for a pair of features it calls "Collective Perception Messages" and "Maneuver Coordination Messages." *See* Continental Br. 6–18. The *Order* explains that the features Continental describes are "potential future, but not yet developed or deployed," technologies that do not currently exist. *Order* ¶ 44 (JA____); *see also id.* ¶ 45 (JA____) ("potential, future [vehicular-communications] applications"). Significantly, commenters presented no persuasive evidence that these technologies will actually prove feasible and would successfully be commercially deployed. *See id.* ¶ 39 (JA____) (declining to reserve additional spectrum for uncertain future technologies because deployment of these "[p]otential future advanced applications [that] are still under development" might never "occur[] at all").

As Continental describes it (Br. 7–12), "Collective Perception Messages" would share camera and other sensor data across all supported vehicles on the roadway and combine all this information into a real-time virtual map of everything in the area, which Continental likens to "see[ing] through the eyes of others." Continental does not contend that working implementations or demonstrations of such technology actually exist, nor does it present any evidence of this technology ever being significantly tested in the real world.

Although Continental asserted below that "applications [of this technology] are already in product development, and * * * can, and we expect will, be launched by 2024–2025," it presented no evidence to substantiate that claim. *See* Continental 7/10/20 Letter at 6 (JA_____). As the Commission observed, "the credibility of such arguments" that vehicular licensees "might ultimately make use of the entire 75 megahertz if it continued to be set aside * * * is lacking[,] given that these same arguments have been advanced * * * for years and years with no discernible change in the marketplace." *Order* ¶ 42 (JA____). Indeed, elsewhere in the same filing, Continental stated that deploying Collective Perception Message technology in a given spectrum band could require "at least a decade, and most likely two or more decades," to complete such

essential steps as "[l]ab and field testing," "[s]tandards & regulation & certification development," "[c]hipset development," "[p]roduct development," and "[r]ollout." Continental 7/10/20 Letter at 6–7 (JA____–__); *accord* Continental Br. 28 (referencing "everything that would need to take place before such deployment could occur," including "development, testing, implementation, etc.").

Continental further stated that "the standards for [Collective Perception Messages] will be finalized this year," Continental 7/10/20 Letter at 6 (JA____), apparently referring to a European standards organization's project (which, more than a year later, still remains in "[e]arly draft" status) "[t]o specify the * * * syntax and semantics" for transmitting Collective Perception Messages.[6] But describing a protocol for transmitting messages is a far cry from developing and producing a working device employing the technology Continental discusses. Continental offered no evidence that it has produced such a device (or even an experimental demonstration of the technology it describes), nor any persuasive evidence that it will be able to do so any time soon.

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[6] European Telecomms. Standards Inst., *Details of 'DTS/ITS-00167' Work Item [ETSI TS 103 324]*, https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=46541.

In fact, Collective Perception Messages have never been listed among the features "foreseen * * * and contemplated," *Order* ¶ 35 (JA____), for the 5.9 GHz band:

- Collective Perception Messages were not among the features contemplated when the Commission first allocated spectrum and established service rules for vehicular communications. *See DSRC Service Rules*, 19 FCC Rcd. at 2519–20 (App'x C) (listing potential features).
- When the Department of Transportation in 2015 issued a Report to Congress on the status of vehicular communications, as required by 23 U.S.C. § 518, it likewise did not mention Collective Perception Messages. U.S. Dep't of Transp., *Status of the Dedicated Short-Range Communications Technology and Applications: Report to Congress* (July 16, 2015), *available at* https://go.usa.gov/xM8cD. The report identifies three planned safety features that require vehicular-communications spectrum (Intersection Movement Assist, Left-Turn Assist, and Emergency Electronic Brake Light). *Id.* at 3, 35. All of those features can be supplied through Basic Safety Messages using just 30 megahertz, and do not require Collective Perception

Messages or additional spectrum. *Order* ¶ 35 n.96 (JA_____); *see* Richard Engelman 10/5/20 White Paper at 2–4 (JA____–__) (attached to Panasonic 10/6/20 Letter (JA____)).

- The Department of Transportation's 2017 proposal to mandate vehicular-communications systems likewise addressed only Basic Safety Messages, *see DOT 2017 NPRM*, 82 Fed. Reg. at 3855, 3857, 3897–907, and made no mention of Collective Perception Messages.

Maneuver Coordination Messages—which Continental describes (Br. 13–15) as allowing vehicles to know what other nearby vehicles will do in the future (that is, to "see what others are about to do")—are likewise an unproven and uncertain future technology. Indeed, according to Continental's own representations in the record, Maneuver Coordination Message technology and applications appear to be even *less* developed than Collective Perception Messages. *See* Continental 7/10/20 Letter at 6 (JA____) (claiming only that Maneuver Coordination Messages "will be finalized soon []after" Collective Perception Messages).

As described by Continental, moreover, Maneuver Coordination Messages are principally an *autonomous vehicle* technology, rather than

a traffic-safety technology.[7] *See* Continental Br. 13–14, 16; *accord Order* ¶ 43 (JA____–__) ("Maneuver Coordination Messages" and similar features are intended to "help enable future autonomous driving services"). These are distinct concepts; autonomous driving is not necessarily safer driving. Moreover, the record indicates that the 5.9 GHz band "is not a requirement for deployment of automated driving systems," and indeed "current autonomous vehicle testing does not use [5.9 GHz] communication." *See Order* ¶ 38 & n.104 (JA____); *accord* Brattle Group 4/27/20 White Paper at 7–8, 10–11 (JA____–__, ____–__).

The Commission reasonably declined to hold spectrum in reserve for these untested, uncertain, hypothetical technologies that have not been shown feasible and might never attain commercial deployment. *Cf.* 47 U.S.C. § 309(j)(4)(B) (directing the Commission "to prevent stockpiling or warehousing of spectrum"). Mere "speculation about 'future potential'" and "a desire to 'future proof' possible future uses," without more, are not a credible basis "to continue to wait for benefits that have proven elusive

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[7] The future movements of human drivers are highly uncertain, and their immediate trajectory can already be conveyed—including their position, path history, speed and acceleration, steering angle, and turn-signal status—through Basic Safety Messages, *see Order* ¶ 35 n.96 (JA____); *DOT 2017 NPRM*, 82 Fed. Reg. at 3900–04.

for more than two decades." *Order* ¶ 45 (JA____–__). To reserve spectrum for unproven technologies "that may or may not develop" would risk "repeat[ing] the same error made in 1999, which resulted in underuse of valuable mid-band [spectrum] while awaiting research and development." *Ibid.* Instead, if these technologies are eventually shown to be feasible and capable of being commercially deployed, interested parties can ask the Commission to allocate spectrum for them at that time. *See id.* ¶¶ 189–192 (JA____–__) (seeking comment on other spectrum that could be allocated for vehicular communications). On this record, however, the Commission reasonably "conclude[d] that the potential deployment of future * * * services that may or may not develop years into the future are too uncertain and remote to warrant the further reservation of spectrum for their deployment." *Id.* ¶ 120 (JA____).

3. For similar reasons, Petitioners err in complaining (Br. 43–44) that the Commission's cost–benefit analysis did not "consider the statistical value of a human life." The Commission found that the record does not "show that hypothetical [safety] benefits * * * would be lost" as a result of the *Order*, because "the 30 megahertz of spectrum that is being retained * * * is sufficient" to support the safety features for which this spectrum is reasonably expected to be used. *Order* ¶¶ 139 (JA____–__);

see also id. ¶ 141 (JA____) ("[E]xisting studies do not show that more spectrum would give rise to additional benefits."). Accordingly, the Commission explained that its actions will not "lead to cognizable costs due to automobile collisions that may be linked to" the *Order*. *Id.* ¶ 140 (JA____); *see* Brattle Group 4/27/20 White Paper at 8–9 (JA____–__) (Petitioners "are wrong [to presuppose] that the proposal to reserve 30 megahertz for safety-of-life uses would diminish automotive safety," and so "the FCC does not need to account for any Value of Statistical Life calculations as asked by commenters").

As to any possible future technologies that do not currently exist, the record does not "demonstrate[] whether such benefits would arise" in the foreseeable future "nor quantif[y] the incremental benefit" for purposes of a numerical cost–benefit analysis. *Order* ¶ 140 (JA____); *see also id.* ¶ 120 (JA____) ("the potential deployment of future * * * services that may or may not develop years into the future are too uncertain and remote"). It was therefore appropriate for the agency not to speculate about those unknown and potentially unknowable possibilities in the analysis here. *See* Off. of Mgmt. & Budget, Off. of Info. & Regul. Affs., *Regulatory Impact Analysis: A Primer* § C.3, at 5 (Aug. 15, 2011), https://go.usa.gov/xMHYh (An agency "should limit its analysis to th[e]

time period" for which "it can reasonably predict the future," and "the agency will need to choose the endpoint for its analysis based on the foreseeable future or the agency's ability to forecast reliably."); *In re EchoStar Commc'ns Corp.*, 17 FCC Rcd. 20559, 20630–31 ¶ 190 (2002) ("[B]enefits that are to occur only in the distant future may be discounted or dismissed because, among other things, predictions about the more distant future are inherently more speculative than predictions about events that are expected to occur closer to the present.").

4. Petitioners' complaints that the Commission "lacks transportation safety expertise" (Br. 31, 39–41) appear to misunderstand the issues before the Commission and ignore the Commission's relevant expertise on issues of spectrum usage and management. The principal issue here is not *what particular features* would promote traffic safety, which might in some circumstances call for specific knowledge about the transportation industry, but instead a question of *what spectrum* is reasonably necessary to accommodate those features. The amount of spectrum that is reasonably needed and available to support a given communications technology is a question that undoubtedly falls squarely within the FCC's expertise and authority.

At bottom, Petitioners essentially maintain (Br. 32–34, 41–43) that the FCC should have been required to uncritically accept unsubstantiated claims from the transportation sector urging it to reserve the entire 5.9 GHz band for vehicular communications indefinitely, despite the lack of any demonstrated traffic-safety need for more than 30 megahertz of spectrum. Transportation proponents might understandably prefer to preserve the entire band in case they might find use for it later. But when the FCC is managing spectrum, the Commission must weigh the needs of myriad industries and stakeholders to strike a balance that best serves the overall public interest and ensures optimal use of scarce spectrum resources. On this record, the Commission reasonably found that "reserving the entire 5.9 GHz band for possible additional services by [vehicular] licensees is not the most efficient or effective use of that band, nor is it in the best public interest to do so." *Order* ¶ 27 (JA____).

B. Repurposing Excess Spectrum To Meet Demand For Wi-Fi Connectivity Serves The Public Interest.

The Commission also reasonably explained that the *Order* is "manifestly in the public interest," *Order* ¶ 117 (JA____), because it fulfills a pressing public need for increased Wi-Fi internet capacity. *See*

id. ¶¶ 14–25 (JA____–__). This Court has recognized that "the use of wireless networks in the United States is skyrocketing" and that the country "faces a major challenge to ensure that the speed, capacity, and accessibility of our wireless networks keeps pace with these demands in the years ahead." *Nat'l Ass'n of Broad. v. FCC*, 789 F.3d 165, 169 (D.C. Cir. 2015) (internal quotation marks omitted). Despite the Commission's many efforts to make more spectrum available, demand continues to outpace supply. *Order* ¶¶ 5, 15–16 (JA____, ____–__).

This new unlicensed spectrum will help alleviate that problem by allowing Wi-Fi networks to relieve congestion, deliver higher speeds, and otherwise keep pace with skyrocketing demand for wireless connectivity. *See Order* ¶¶ 2, 14–25 (JA____–__). The Commission thus concluded that repurposing this spectrum "will provide the American public with the most efficient use of spectrum, based on current and future needs," and "will ensure the quickest path toward[] its most efficient and effective use." *Id.* ¶¶ 14, 20 (JA____, ____).

Petitioners attempt to downplay Wi-Fi as a luxury for "smart refrigerators and washing machines" (Br. 4), but this shortchanges the vital role that Wi-Fi connectivity plays in the lives of many Americans. As the *Order* explains, Wi-Fi "provide[s] high data rate local area

network connections for smart phones, tablets, computers, television, and other devices inside and outside the home to interconnect with and access the Internet." *Order* ¶ 15 (JA____). Today, "[m]any households rely on Wi-Fi to connect to the Internet," making it "a staple in American life." *Ibid.* The COVID-19 pandemic has made the need for such spectrum "more critical than ever before," as Americans increasingly rely on remote connectivity for "distance learning, teleworking, and social networking," among other crucial everyday needs. *Id.* ¶ 16 (JA____).

Petitioners' suggestion that this spectrum is unnecessary because the Commission recently made other unlicensed spectrum available in the 6 GHz band (Br. 19–20, 48–49) misses the mark. The urgent demand for improved Wi-Fi means that any additional spectrum is of significant benefit. Moreover, to access Wi-Fi in the 6 GHz band, manufacturers must develop and consumers must purchase entirely new devices, so the benefits of the 6 GHz band may not be fully realized for many years. By contrast, because the 5.9 GHz band "is adjacent to [an existing] band that supports unlicensed operations, equipment manufacturers should be able to readily and cost-effectively manufacture devices" supporting it. *Order* ¶ 18 (JA____). In fact, because of this adjacency, many *existing* Wi-Fi devices will be able to use the 5.9 GHz band by downloading a software

or firmware update. *Id.* ¶ 22 (JA____). And the adjacency of the 5.9 GHz band to other spectrum already allocated for unlicensed use gives rise to additional synergies that go beyond the simple quantity of spectrum made available. *See id.* ¶ 18–20, 23 (JA____–__) (discussing the benefits of a contiguous 160-megahertz channel that does not require dynamic frequency selection). The spectrum at issue here is thus "especially well-positioned to deliver immediate and significant benefits," *id.* ¶¶ 18, 21 (JA____–__), "saving years of delay compared to any other band and lowering costs across the board," *id.* ¶ 22 (JA____).

Since the 30 megahertz that the Commission retained for vehicular communications will allow licensees to continue providing the traffic-safety features for which this spectrum is reasonably expected to be used, *see supra* Part II.A, "it was entirely reasonable for the FCC to conclude that [scarce] spectrum would better serve the public interest if actively used * * * than if held in reserve by * * * operators unlikely to need it." *PSSI Glob. Servs., L.L.C. v. FCC*, 983 F.3d 1, 9 (D.C. Cir. 2020). The Commission thus appropriately found that "reserving the entire 5.9 GHz band for [vehicular communications] is not the most efficient or effective use of that band" and does not "maximize the use of this valuable spectrum for the public's greatest well-being." *Order* ¶ 27 (JA____).

C. Petitioners' Other Arguments Lack Merit.

Petitioners' other challenges to the Commission's reasoning are unavailing. A court "will uphold the decision if [it] can discern a 'reasoned path from the facts and considerations before the Commission to the decision it reached,'" *Russian River Vintage Broad. v. FCC*, 5 F.3d 1518, 1521 (D.C. Cir. 1993), and the Commission "d[oes] not act arbitrarily by failing to address a proposal that was neither 'significant' nor 'viable,'" *PSSI*, 983 F.3d at 12.

1. To begin with, there is no merit to Petitioners' contention (Br. 46–47) that the Commission did not provide a reasoned explanation for a change in policy. When an agency seeks to change policy, it "need only show 'that the new policy is permissible under the statute, that there are good reasons for it, and that the agency *believes* it to be better.'" *Mary V. Harris Found. v. FCC*, 776 F.3d 21, 24–25 (D.C. Cir. 2015) (quoting *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515 (2009)). That showing is easily satisfied here.

"Since the Commission first designated the 5.9 GHz band for [vehicular communications] in 1999," the *Order* explains, "transportation and vehicular safety-related technologies have evolved significantly, as have demands for access to mid-band spectrum, particularly for

unlicensed operations." *Order* ¶ 14 (JA____). Vehicular-communications technology has not developed as the Commission originally anticipated, *id.* ¶¶ 7, 31, 38–39 (JA____, ____–__, ____–__), while use of and demand for Wi-Fi connectivity has skyrocketed, *id.* ¶¶ 14–25 (JA____–__). In light of these "changed circumstances," *id.* ¶ 14 (JA____), the Commission found that "reserving the entire 5.9 GHz band for [vehicular communications] is not the most efficient or effective use of that band" and that "changes to the band plan we adopted over 20 years ago are essential to maximize the use of this valuable spectrum for the public's greatest well-being," *id.* ¶ 27 (JA____).

The Commission also considered existing licensees' reliance interests and reasonably found them to be minimal. "[T]here has not been any widescale deployment of" vehicular-communications equipment to date, and "there currently is no deployment within the commercial consumer automobile market." *Order* ¶ 31 (JA____).[8] For the limited equipment that has been deployed, licensees should be able to shift operations to the upper 30 megahertz of the band by "[r]econfiguring

[8] Cadillac briefly sold one model of sedan with 5.9 GHz radios beginning in 2017, but discontinued installation of these radios in mid-2019. *See Order* ¶ 45 n.131 (JA____).

[existing] devices by updating firmware and/or software," rather than needing to replace existing equipment. *Id.* ¶ 119 (JA____). And the Transportation Petitioners do not challenge the decision to transition vehicular communications from the original protocol to a newer cellular protocol that is incompatible with existing equipment, *see supra* note 3, so it is likely that most of the costs they complain of would be incurred even if they retained the existing 75 megahertz of spectrum. *See id.* ¶ 143 (JA____) (discounting these costs that licensees would incur in any event).

2. Nor is there any merit to Petitioners' contention (Br. 47–48) that the Commission failed adequately to consider potential interference to vehicular communications from unlicensed devices. On the contrary, the *Order* subjects unlicensed devices in the lower 45 megahertz to stringent power and out-of-band emissions limits, and also confines unlicensed use to indoor locations only, to prevent harmful interference to vehicular communications in the upper 30 megahertz. *See Order* ¶¶ 80–86 (JA____–__). And the Commission explained that these limits will ensure that any interference to vehicular licensees in the upper 30 megahertz will be no greater than what was already allowed before the *Order*. *Id.* ¶ 83 (JA____–__). As even Petitioners acknowledge (Br. 48), determinations of this sort "are within the Commission's expertise." *Cf.*

Mobile Relay, 457 F.3d at 8 ("We uphold the Commission if it makes a 'technical judgment' that is supported with 'even a modicum of reasoned analysis,' 'absent highly persuasive evidence to the contrary.'").

Petitioners' suggestion that the Commission could have awaited further study of potential spectrum-sharing (Br. 46, 47) is equally puzzling. Given Petitioners' apparent dissatisfaction with the restrictions the Commission required for vehicular communications and unlicensed devices to operate in *adjacent* spectrum, Petitioners presumably would find sharing the *same* spectrum even more objectionable.

3. Petitioners' call for the Commission to conduct a "negotiated rulemaking" (Br. 44–45) is similarly baseless. To begin with, an agency's decision whether to establish a negotiated rulemaking is "not * * * subject to judicial review." 5 U.S.C. § 570. Nor was this a suitable occasion for a negotiated rulemaking, which is designed for situations where "there is a reasonable likelihood" that it would be possible to "reach a consensus" that is acceptable to all identifiable interests. *Id.* § 563(a); *see* Admin. Conf. of the U.S., *Recommendation 2017-2: Negotiated Rulemaking and Other Options for Public Engagement*, 82 Fed. Reg. 31039, 31040–42 (July 5, 2017). Here, however, the adversarial stances of various parties and industries demonstrate that consensus is

highly unlikely, and a negotiated rulemaking would be unsuitable and cause only further delay.

4. Finally, the proposal that the Commission impose "an industry-wide buildout commitment of 5 million devices in 5 years" (Pet. Br. 45) is beside the point. A buildout requirement would not address the underlying concerns that vehicular communications are unlikely to require use of the entire 5.9 GHz band to meet reasonably anticipated traffic-safety needs, even when this technology is fully deployed in all vehicles, and that retaining the full 75 megahertz initially allocated would cause this spectrum to remain substantially underutilized at a time when it is urgently needed to address other pressing public needs.

Indeed, mandating new buildout under the previous band plan would only make it more difficult to make much-needed changes to the existing spectrum allocation and service rules to address these concerns, and would needlessly increase the costs that would need to be incurred to accomplish a transition at a later date. As the Commission explained, "[f]urther delay will not serve the American public," and "it is best to move forward with a revised 5.9 GHz band plan * * * so that these vehicle related safety applications can be fully deployed quickly." *Order* ¶ 106 (JA____).

III. THE COMMISSION PROPERLY EXERCISED ITS AUTHORITY TO MODIFY EXISTING LICENSES UNDER SECTION 316.

Section 316 of the Communications Act empowers the Commission to "modif[y]" any license "if, in the judgment of the Commission, such action will promote the public interest, convenience, and necessity." 47 U.S.C. § 316(a)(1); *see Cal. Metro Mobile Commc'ns, Inc. v. FCC*, 365 F.3d 38, 45 (D.C. Cir. 2004) ("the Commission need only find that the proposed modification serves the public interest"). The Court has held that Section 316's use of the word modify, "[a]lthough broad," stops short of allowing "'fundamental'" changes to existing licenses. *PSSI*, 983 F.3d at 7. As the Commission explained, however, the *Order* does not effect a fundamental change to any licenses. *See Order* ¶ 118 (JA____).

1. A license is not fundamentally changed if the licensee "will be able to provide essentially the same services after the transition as before," or "could continue providing the same service * * * through new * * * technology." *PSSI*, 983 F.3d at 9 (citing *Cmty. Television, Inc. v. FCC*, 216 F.3d 1133, 1141 (D.C. Cir. 2000)). Indeed, even an order requiring licensees "to entirely transform their operations" is a "permissibl[e] modif[ication]" as long as the licensee "would 'provide essentially the same services' before, during, and after the transition." *PSSI*, 983 F.3d at 8.

Here, the Commission reasonably found that the *Order* "will not meaningfully interfere with the ability of incumbents to provide the same types of safety-related services that they are currently offering" and that it will not "upend any concrete business plans of [incumbent] licensees." *Order* ¶¶ 118, 120 (JA____–__). Licensees will be able to continue providing essentially the same vehicular-communications services that they received those licenses for; they need only make appropriate modifications to shift communications to the upper 30 megahertz of the band, *see id.* ¶ 119 (JA____), and employ the new cellular protocol. "Unless it harms the services ultimately provided, the need to make such technological adjustments does not impose any impermissibly fundamental change." *PSSI*, 983 F.3d at 9.[9]

2. For similar reasons, contrary to Petitioners' arguments (Br. 49–52), the *Order* does not "revoke" any existing vehicular-communications licenses. As Petitioners acknowledge (Br. 52), this Court held in *PSSI*

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[9] Petitioners appear to argue (Br. 53–54) that the *Order* is somehow inconsistent with *PSSI* because the Commission described its analysis as "consistent with" a pre-*PSSI* order addressing the C-band. *See Order* ¶ 121 & n.319 (JA ____–__) (citing *Expanding Flexible Use of the 3.7 to 4.2 GHz Band*, 35 FCC Rcd. 2343 (2020), *aff'd*, *PSSI*, 983 F.3d 1). But the earlier order at issue is the underlying order that this Court *affirmed* in *PSSI*, which confirms that no disparity exists between the decision in *PSSI* and the Commission's approach here.

that "a reduction in spectrum that leaves licensees with enough capacity to meet current and future needs does not remotely constitute a revocation." 983 F.3d at 9. That holding forecloses Petitioners' challenge here, given the Commission's record-based finding that the remaining 30 megahertz will suffice to support the safety features for which this spectrum is reasonably expected to be used.

Petitioners briefly contend (Br. 49–50) that the *Order* constitutes a revocation because the Commission intends to require licensees to use a new cellular protocol in the spectrum that remains. But the Transportation Petitioners ask the Court *not* to disturb that portion of the *Order*, which they embrace as "a reasonable exercise of the FCC's authority." *See supra* note 3. And the Amateur Data Network is not a vehicular licensee and does not hold (nor do its users hold) any licenses modified by the *Order*, so it cannot object to this change under Section 316. In all events, "the need to make such technological adjustments" routinely arises in permissible spectrum modifications and "does not remotely constitute a revocation." *PSSI*, 983 F.3d at 9.

3. Finally, Petitioners' concerns about "relocation costs" (Br. 51) are premature. The Commission has not yet ruled on licensees' request to be compensated for relocation costs, but instead deferred decision

pending further public comment. *See Order* ¶ 57 (JA____). "While some mechanism for funding the transition might be appropriate," the *Order* explains, the record before the Commission lacked adequate comment on potential funding sources.[10] *Ibid.* The Commission therefore "delay[ed] the resolution of this issue" to seek further comment from interested parties. *Ibid.*; *see id.* ¶¶ 166–167 & n.440 (JA____).[11]

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[10] In the past, the Commission has found it in the public interest to reimburse incumbent licensees for their transition costs when spectrum is being reclaimed to support new commercial licenses and the proceeds from auctioning new licenses can be used to fund the transition. The Commission has not previously considered whether or how to address any transition costs when no new licenses will be auctioned and any funding must come from other sources.

[11] In addition to potential preexisting funding sources, the bipartisan infrastructure bill recently passed by the Senate and pending consideration in the House would authorize the federal Highway Trust Fund to pay the costs of retrofitting existing vehicular-communications equipment and would appropriate an additional $110 million per year to fund such efforts. *See* Infrastructure Investment and Jobs Act, H.R. 3684, 117th Cong., Sec. 11101(c)(1)(B) (as passed by Senate, Aug. 10, 2021) (appropriation); *id.* Sec. 13006(b)(6)(G) (amending 23 U.S.C. § 503(c)(4)(E)).

CONCLUSION

The petitions for review should be denied, and the *Order* should be affirmed.

Dated: October 13, 2021

Respectfully submitted,

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STATUTORY ADDENDUM

STATUTORY ADDENDUM CONTENTS

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Section 5206(f) of the Transportation Equity Act for the 21st Century, Pub. L. No. 105-178, 112 Stat. 107, 457 (1998), provides:

> **Sec. 5206. National architecture and standards.**
>
> * * *
>
> (f) SPECTRUM.—The Federal Communications Commission shall consider, in consultation with the Secretary [of Transportation], spectrum needs for the operation of intelligent transportation systems, including spectrum for the dedicated short-range vehicle-to-wayside wireless standard. Not later than January 1, 2000, the Federal Communications Commission shall have completed a rulemaking considering the allocation of spectrum for intelligent transportation systems.

23 U.S.C. § 517(a) provides:

> **§ 517. National architecture and standards**
>
> (a) IN GENERAL.—
>
> (1) DEVELOPMENT, IMPLEMENTATION, AND MAINTENANCE.—In accordance with section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note; 110 Stat. 783; 115 Stat. 1241), the Secretary shall develop and maintain a national ITS architecture and supporting ITS standards and protocols to promote the use of systems engineering methods in the widespread deployment and evaluation of intelligent transportation systems as a component of the surface transportation systems of the United States.
>
> (2) INTEROPERABILITY AND EFFICIENCY.—To the maximum extent practicable, the national ITS architecture and supporting ITS standards and protocols shall promote interoperability among, and efficiency of, intelligent transportation systems and technologies implemented throughout the United States.
>
> (3) USE OF STANDARDS DEVELOPMENT ORGANIZATIONS.—In carrying out this section, the Secretary shall support the development and maintenance of standards and protocols using the services of such standards development organizations as the Secretary determines to be necessary and whose memberships

include representatives of the surface transportation and intelligent transportation systems industries.

47 U.S.C. § 303 provides in pertinent part:

§ 303. Powers and duties of Commission.

Except as otherwise provided in this chapter, the Commission from time to time, as public convenience, interest, or necessity requires shall—

(a) Classify radio stations;

(b) Prescribe the nature of the service to be rendered by each class of licensed stations and each station within any class;

(c) Assign bands of frequencies to the various classes of stations, and assign frequencies for each individual station and determine the power which each station shall use and the time during which it may operate;

* * *

(g) Study new uses for radio, provide for experimental uses of frequencies, and generally encourage the larger and more effective use of radio in the public interest;

* * *

(r) Make such rules and regulations and prescribe such restrictions and conditions, not inconsistent with law, as may be necessary to carry out the provisions of this chapter * * * .

* * *

47 U.S.C. § 316 provides in pertinent part:

§ 316. Modification by Commission of station licenses or construction permits; burden of proof.

(a)(1) Any station license or construction permit may be modified by the Commission either for a limited time or for the duration of the term thereof, if in the judgment of the Commission such action will promote the public interest, convenience, and necessity * * * .

* * *